Regulation of the HPG axis in the blotched blue-tongued skink, *Tiliqua nigrolutea*

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Abstract

We have investigated seasonal and sex-related differences in the activity of the hypothalamic-pituitary-gonadal axis in the blotched blue-tongued lizard, *Tiliqua nigrolutea* as part of an investigation of the onset of sexual maturation and its subsequent annual regulation in a seasonally-breeding, viviparous reptile. Males of this species breed annually, while females exhibit a multiennial cycle. Age at maturity is unknown. We injected adult male and both reproductively active and non-reproductively active adult female lizards with GnRH at relevant times of year: males (Jan - quiescent; Mar - early spermatogenesis; Oct - late spermatogenesis/mating), females (Apr – past partum/quiescent; Oct – vitellogenesis/quiescent). Juveniles at ages 1, 6, 12 and 18 months of age have been injected with GnRH and had sex steroids measured in the same way, to examine the onset of HPG axis regulation and so, the onset sexual maturity. We plan to follow these juveniles over time until sexual maturity is reached. We have found clear seasonal and sex-related differences in the production of testosterone (T) and estradiol (E2) in each sex (as a measure of the activity of the HPG axis), and suggest that aromatase activity may be an important point of regulation of the multiennial cycle in females of this species. We are also using assay results to develop a model for sexing offspring via differences in the testosterone to estradiol ratio for future studies.